

Appl No. 10/010,712
Amd. Dated June 7, 2005
Reply to Office Action of March 7, 2005

REMARKS:

The Office Action dated March 7, 2005 has been received and carefully reviewed. Reconsideration of the present application is respectfully requested in view of the above amendments and the remarks below.

Claims 1-28 were originally submitted in the present application. Claims 1-3, 10-12, 16-18, and 24 have been canceled. Claims 4, 6, 13, 19, 21-23, 25, 27, and 28 have been amended. As of the current amendment, Claims 4-9, 13-15, 19-23, and 25-28 are pending in the present application.

Applicants not with appreciation the indication that Claims 6-9 are considered allowable and that Claims 19, 20, 25 and 25 would be considered allowable if rewritten to avoid dependence from rejected claims. Claims 19 and 25 have been rewritten in independent form and include all elements of their original parent claims and any intervening claims. Claim 20 depends from Claim 19, and Claims 21-23 have been amended to depend from Claim 19. Similarly, Claim 26 depends from Claim 25, and Claims 27 and 28 have been amended to depend from Claim 25. Claims 19-23 and 25-28, as amended, are believed to be in condition for allowance.

Claim 4 is an independent claim and, as amended, calls for a workpiece inspection system for consecutively inspecting a plurality of workpieces, each workpiece including at

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least a first opening and the system being adapted to determine a presence of additional openings in the work piece, the system comprising: a camera positioned to capture an image of a workpiece in an inspection zone; a launching device from which the workpieces may be consecutively launched to pass unsupported through the inspection zone; a sensor positioned to sense when a workpiece enters the inspection zone; a light positioned to direct light into a workpiece when the workpiece is in the inspection zone; and a controller communicating with the sensor and the camera and programmed to cause the camera to capture an image of the workpiece and to analyze the image of the workpiece to any defects in the workpiece, including additional openings in the workpiece.

Claim 4 is somewhat similar to allowed Claim 6 and has been amended to include the light positioned to direct light into the workpiece and the analysis of the image to determine the presence of any openings in the workpiece in addition to the first opening. As such, Claim 4, as amended, is believed to distinguish over Ditchburn '732 and the other cited references for the same reasons as Claim 6.

Claim 5 depends from Claim 4, adds further details thereto, and is believed to distinguish over the cited references for the same reasons as Claim 4.

Claim 13 is an independent claim and, as amended, calls for a process for inspecting a succession of workpieces wherein each workpiece is hollow and includes a

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first opening and the workpieces are inspected to detect an additional opening, the process comprising the steps of: positioning a camera to define a workpiece inspection zone and to capture an image of a workpiece within the inspection zone; successively launching workpieces unsupported through the inspection zone; capturing a respective image of each workpiece launched through the inspection zone; internally illuminating each workpiece through the first opening simultaneously with the step of capturing the image thereof; and processing each image by a computer to detect an additional opening in the workpiece.

Claim 13 is somewhat similar to Claim 19 which was indicated as allowable. Claim 13, as amended, includes the step of internally illuminating each workpiece for image capturing and processing the image to detect an additional opening in the workpiece. As amended, Claim 13 is believed to distinguish over Ditchburn and the other cited references for the same reasons as Claim 19.

Claims 14 and 15 depend from Claim 13, add details thereto and are believed to distinguish over the cited references for the same reasons as Claim 13.

Claims 4, 5, 13-15, 19-23, and 25-28 are presented for reconsideration. Applicants contend that said claims define image based defect detection systems which are not anticipated by or obvious from any of the references of record, either singly or in

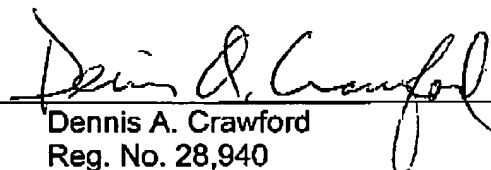
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combination. Therefore, the allowance of Claims 4, 5, 13-15, 19-23, and 25-28, along with Claims 6-9, is earnestly solicited.

The Examiner is invited to contact Applicants' agent at the telephone number listed below in the event it is felt the prosecution of this application can be expedited thereby.

Respectfully submitted,

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